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## **ECONOMIC STATUS OF THE CALIFORNIA DUNGENESS CRAB FISHERY IN 1984-1985**

by

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U.S. DEPARTMENT OF COMMERCE  
National Oceanic and Atmospheric Administration  
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Southwest Region

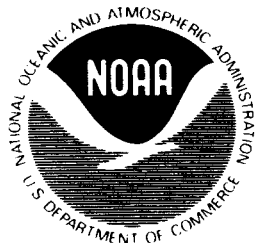
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**U.S. DEPARTMENT OF COMMERCE**

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## ECONOMIC STATUS OF THE CALIFORNIA DUNGENESS CRAB FISHERY IN 1984-85

This is the third in a series of annual reports on the economic status of the California Dungeness crab (Cancer magister) fishery. The 1984-85 crab season is reviewed and compared to the 1983-84 season and to the average season from 1979-80 to 1983-84.

### I. OVERVIEW

The west coast Dungeness crab catch reached a 10-year low during the 1984-85 season. Landings in Washington, Oregon, California, and Alaska were an estimated 23.6 million pounds, down 12 percent from the poor 1983-84 season and 35 percent below the recent five-year average (Table 1). In California, Dungeness crab landings reached a 5-season low of 5.25 million pounds, down 10 percent from the catch in 1983-84. However, the catch is still much higher than experienced at the low end of the cycle in the early sixties and again in the early seventies (Figure 1). The decline in landings was especially severe in the San Francisco statistical area; landings fell 30 percent to only 600,000 pounds following a fourteen year high of 857,000 pounds landed during the 1983-84 season. Eureka statistical area landings decreased by 7.5 percent in 1984-85 (Table 2). Landings south of the San Francisco area were negligible again in 1984-85, as they have been since the 1974-75 season.

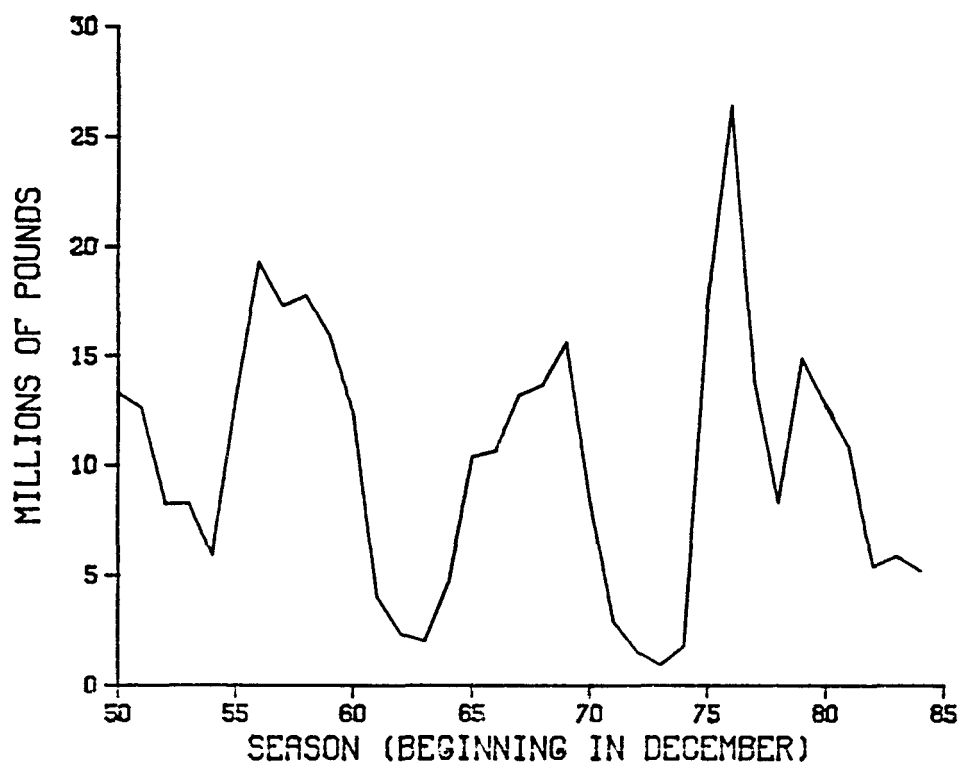


Figure 1. California landings of Dungeness Crab, 1950-51 to 1984-85.

The number of vessels landing Dungeness crab in California using pot gear was 604 in the 1984-85 season, up slightly from 587 in the previous season. However, substantially fewer vessels made season landings of 20,000 pounds or more, while the number making landings between 10,000 pounds and 19,999 pounds increased by 39 percent (Table 3).

The fishing season in northern California (north of Point Arena) opened December 1, as usual, but closed July 15, one and one half months earlier than in recent years due to poor crab condition attributable to early molting. South of Point Arena the season opened, as usual, on the second Tuesday of November, but closed on June 30, one month earlier than in the previous 5 years, also due to poor crab condition.

## II. CALIFORNIA COMMERCIAL CRAB FLEET

This section provides information on factors affecting the financial performance of the vessels landing Dungeness crab in California using crab pots in the 1984-85 season. Small amounts of crab are landed each year by bottom trawlers, which are allowed up to 500 pounds of crab per trip, but the amounts are an insignificant contribution to trawlers' revenue and to total crab landings. A complete picture of how the California crab fleet is doing financially, cannot be presented without analyzing costs, earnings, and cash flows resulting from the entire range of activities engaged in by crab vessels. This range of activities is likely to include crabbing in other states, salmon trolling, and albacore fishing. Most of the information required for such

an analysis cannot be obtained for inclusion in this report. Cost data constitute proprietary information not collected on a routine basis by government agencies. Landings data for specific vessels operating in more than one state presently cannot be obtained on a timely basis for producing annual status reports. Until these data deficiencies are overcome, this report will be limited to developments in the crab fishery and known complementary fisheries which are likely to affect the economic health of the crab fleet.

A total of 604 pot vessels made one or more landings of Dungeness crab into California during the 1984-85 fishing season, compared to 587 vessels in 1983-84. In both seasons the majority of the pot fleet landed less than 5,000 pounds of Dungeness crab, as indicated in Table 2. Fewer boats made season landings of 20,000 pounds or more in the 1984-85 season.

Total California landings of crab by pot vessels dropped from 5,651,000 pounds in the 1983-84 season, to 5,086,000 pounds in 1984-85 (Table 4). Pounds landed per vessel dropped 12.5 percent, from 9,627 in 1983-84 to 8,421 in 1984-85. However, pounds per landing remained almost constant, dropping only from 555.8 in 1983-84 to 555.2 in 1984-85. Thus, the drop in total landings was the result of fewer deliveries per vessel. The shorter crab season in 1984-85 probably contributed to the decrease in the number of deliveries.

The total exvessel value of 1984-85 season California Dungeness crab landings was \$8,008,000 (Table 4). This is 16

percent under the 1983-84 value of \$9,221,000. Lower landings and a slight drop in price contributed to the decline in exvessel value. The average exvessel price was \$1.57 per pound in 1984-85 compared to \$1.63 per pound in 1983-84 (Table 4). Crab revenue per vessel dropped 15.6 percent, from \$15,708 in 1983-84 to \$13,259 in 1984-85. Adjusting for inflation, the real value of crab landings per pot vessel declined by 18.6 percent from 1983-84 to 1984-85.

Most crab fishing in California is finished by late winter. As a consequence, crab boats generally participate extensively in other fisheries, especially the salmon and albacore fisheries. Often, these complementary fisheries produce more revenue for crab boats than do crab. The larger vessels tend to rely more on albacore than the smaller ones, especially in years when the albacore migrate far offshore. Because coastwide landings data are not available in an integrated file for 1985, it is not possible at this time to determine the landings of these species by the crab fleet. However, it is known that the combined landings of albacore and salmon in California dropped by approximately 21 percent from 1984 to 1985, suggesting that crab vessels probably could not compensate for their loss of crab revenue by taking more salmon and albacore.

The California Dungeness crab fishery is at the low end of its production cycle; if the pattern of the last 35 years persists, then catches should be higher in the near future. However, since the causes of the strong fluctuations in crab



abundance are not fully understood, it is impossible to make precise predictions with any confidence.

### III. CALIFORNIA PROCESSORS AND MARKET CONDITIONS

Dungeness crab is sold whole (either live or cooked), as meat, and as sections. Some processors experimented in 1985 with marketing of crab claws scored to make them easy to break apart (Matsen, 1986), but this product form (called "snap and pull") is not well enough established to show up in official statistics of processed crab production. Whole Dungeness crab is a unique product with no close substitutes. However, when sold as meat, it competes directly with Alaskan king and Tanner crab in west coast restaurants and retail seafood outlets.

The supply of Dungeness crab in the United States is determined by the catch in Alaska, Washington, Oregon, and California (Table 6). Frozen crab may be inventoried with a shelf life sufficient to modify the flow of product which reaches the consumer, but not sufficient to prevent a strong seasonal pattern in wholesale prices and sales (Proctor, 1980).

The demand for Dungeness crab meat is affected by the supply of king crab and Tanner crab caught off Alaska. The Alaska landings of king crab declined in 1984-85, while landings of Tanner crab almost doubled. The net result was a 41 percent increase in the combined supply of these two species in international and domestic markets from 1983-84 to 1984-85 (Table 6).

The majority of Dungeness crab landed in California, Oregon, and Washington in recent years has been processed and sold as cooked meat. Most of the rest has been sold as whole crab. There were no substantial changes in this pattern during 1985 (Table 7). Wholesale prices (processor level) for whole and sectioned crab dropped in 1985 while the price of meat remained about the same as it was in 1984 (Table 8). This marked the first downturn in prices since at least 1980.

## REFERENCES

Matsen, B. 1986. Dungeness. Pacific Fishing Yearbook 7(4): 43-45.

Pacific Fishery Management Council. 1979. Draft fishery management plan for the Dungeness crab fishery off Washington, Oregon, and California, 93 p.

Pacific Marine Fisheries Commission. 1986. Data series: crab and shrimp section.

Proctor, R. 1980. 1978 west coast summaries of common product forms for Dungeness crab, pink shrimp and west coast groundfish. PFMC, 105 p.

Talley, K. 1986. Tanner crab. Pacific Fishing Yearbook 7(4): 63-66.

Table 1 - United States Dungeness Crab Landings (thousand of pounds) from 1977-78 to 1984-85.

<u>Season</u>	<u>California</u>	<u>Oregon</u>	<u>Washington</u>	<u>Alaska</u>	<u>Total</u>
1977-78	13,800	10,375	9,237	7,169	40,581
1978-79	8,300	16,352	10,362	6,334	41,348
1979-80	14,853	18,277	8,320	5,912	47,362
1980-81	12,717	9,529	4,494	15,109	41,849
1981-82	10,786	8,700	3,928	15,811	39,225
1982-83	5,413	4,100	5,237	11,801	26,551
1983-84	5,854	4,700	6,166	9,967	26,687
1979-80 to 1983-84 average	9,925	9,061	5,629	11,720	36,335
1984-85	5,248	4,900	4,266	9,180	23,594

Source: Pacific Marine Fisheries Commission. 1986. Data series: crab and shrimp section.

Table 2 - Dungeness Crab Landings in Northern<sup>1</sup> and Central<sup>2</sup> California.

<u>Season</u>	<u>Pounds Landed</u>	
	Northern California	Central California
1977-78	13,341,000	589,000
1978-79	7,989,000	760,000
1979-80	13,199,000	661,000
1980-81	11,333,000	513,000
1981-82	10,338,000	207,000
1982-83	4,671,000	558,000
1983-84	4,679,000	857,000
1984-85	4,327,000	600,000

<sup>1</sup>PMFC Data Series. Sum of landings reported for Eureka, Crescent City, and Fort Bragg.

<sup>2</sup>PMFC Data Series. Sum of landings reported for Bodega Bay and San Francisco. Small amounts of Dungeness crab landed in ports south of the San Francisco area are included in the total landings for California reported in Table 1.

Table 3 - Distribution of Vessels by Pounds Landed and Exvessel Value of Dungeness Crab for Pot Vessels Landing in California during the 1983-84 and 1984-85 Seasons.

<u>Pounds</u>	<u>1983-84</u>	<u>1984-85</u>
0 - 999	215	213
1,000 - 4,999	126	121
5,000 - 9,999	74	85
10,000 - 14,999	37	69
15,000 - 19,999	29	40
20,000 - 29,999	52	39
30,000 - 39,999	21	14
40,000 - 49,999	17	14
>49,999	<u>9</u> 587	<u>16</u> 604

<u>Value (\$)</u>	<u>1983-84</u>	<u>1984-85</u>
0 - 999	182	184
1,000 - 4,999	114	116
5,000 - 9,999	69	62
10,000 - 19,999	64	106
20,000 - 29,999	44	54
30,000 - 39,999	32	36
40,000 - 49,999	30	12
50,000 - 74,999	29	19
>74,999	<u>15</u> 587	<u>23</u> 604

Source: California Department of Fish and Game, Fish Ticket Data

Table 4 - Exvessel Value and Average Weighted Price of Dungeness Crab Landings in California from the 1980-81 Season to the 1984-85 Season.

<u>Year</u>	<u>Landings</u> <sup>1</sup>	<u>Nominal Exvessel Value</u>	<u>Real</u> <sup>2</sup> <u>Exvessel Value</u>	<u>Average Price per Pound</u>
1980-81	11,800,000	8,643,000	N/A	0.73
1981-82	10,525,700	9,870,000	4,935,000	0.94
1982-83	5,326,900	4,871,000	2,332,000	0.91
1983-84	5,651,200	9,220,800	4,236,000	1.63
1984-85	5,086,200	8,008,200	3,549,000	1.57

Source: 1980-81 through 1982-83 landings, California Department of Fish and Game. Unpublished Preliminary Monthly Fish Landings by Region.

1980-81 through 1982-83 value data estimated from CDFG monthly landings and exvessel prices obtained from Market News Office, Southwest Region, NMFS

1983-84 and 1984-85 landings and value, California Department of Fish and Game, Fish Ticket Data. Poundage and value totals may not agree with preliminary data from CDFG Fish Bulletin publications because fish ticket file is more current.

<sup>1</sup>Landings may not agree with those reported in Table 1 because data are preliminary. PMFC landings data used for Table 1 do not include the value of landings.

<sup>2</sup>Adjusted for inflation using the GNP implicit price deflator (1972=100).

Table 5 - Breakdown of Dungeness Crab Landings and Exvessel Value by Length-Class of Vessel for the 1983-84 and 1984-85 Seasons.

<u>Length (feet)</u>	<u>Number</u>		<u>Average Pounds</u>		<u>Average Value (\$)</u>	
	<u>83-84</u>	<u>84-85</u>	<u>83-84</u>	<u>84-85</u>	<u>83-84</u>	<u>84-85</u>
< 30	108	117	2,514	2,279	4,343	3,516
30 - 39	212	210	6,011	5,629	9,881	8,893
40 - 49	179	177	11,517	10,460	18,984	16,536
50 - 59	48	62	21,302	17,968	34,501	28,496
60 - 69	23	24	30,165	19,952	48,015	31,210
> 70	15	12	21,749	17,748	32,934	24,937
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Total	585 <sup>1</sup>	602 <sup>1</sup>				

Source: California Department of Fish and Game, Fish Ticket Data.

<sup>1</sup>Two vessels recording landings in each season had unknown lengths.



Table 6 - West Coast and Alaska Landings (million pounds) of King, Tanner, and Dungeness Crab, 1977-78 to 1984-85.

<u>Year</u>	<u>King Crab</u>	<u>Tanner Crab</u>	<u>Dungeness Crab</u>
1977-78	117.5	129.6	40.6
1978-79	146.3	130.7	41.3
1979-80	147.6	121.6	47.4
1980-81	193.1	99.0	41.8
1981-82	88.0	71.5	39.2
1982-83	40.7	61.8	26.6
1983-84	24.0	46.9	26.7
1984-85	17.0	83.0	23.6

Source: King crab landings from Pacific Fishing, 1986 Yearbook, Vol VII, No.4, p. 100. Tanner crab landings from p. 64 of the same publication. Dungeness Crab landings from Table 1.

Table 7. Quantity and Value of Dungeness Crab Processed in Washington, Oregon, and California, 1980 to 1985.

<u>Year</u>	<u>Units (millions)</u>	<u>Product Form</u>			<u>Total (\$)</u>
		whole	meat	legs and sections	
1980	pounds	10.2	3.3	0.33	26.0
	dollars	10.6	14.2	1.2	
1981	pounds	5.6	3.9	0.13	29.9
	dollars	7.3	22.2	0.35	
1982	pounds	3.8	3.6	0.46	29.3
	dollars	5.3	22.9	1.1	
1983	pounds	4.3	2.8	0.81	30.8
	dollars	7.8	20.1	2.9	
1984	pounds	3.4	2.4	0.72	31.4
	dollars	8.3	20.2	3.0	
1985	pounds	2.7	2.3	0.44	26.5
	dollars	5.7	19.2	1.6	

Source: Processed Fishery Products, Annual Summaries, 1980-85.  
National Marine Fisheries Service.

Table 8. Average Price per Pound and Percent of Revenue by Product Form, of Dungeness Crab Processed in Washington, Oregon, and California, 1980-85.

<u>Year</u>	<u>Units</u>	<u>Product Form</u>		
		whole	meat	legs and sections
1980	dollars/pound	1.046	4.350	3.502
	percent	40.9	54.7	4.4
1981	dollars/pound	1.292	5.658	2.727
	percent	24.4	74.4	1.2
1982	dollars/pound	1.366	6.430	2.402
	percent	17.9	78.3	3.8
1983	dollars/pound	1.838	7.077	3.590
	percent	25.4	65.2	9.4
1984	dollars/pound	2.457	8.300	4.101
	percent	26.2	64.3	9.4
1985	dollars/pound	2.135	8.317	3.624
	percent	21.5	72.4	6.1